

Discussion on "The Multi-Cell SC CH-Cavity" by Andreas Sauer

The application for this structure could be an ADS type machine (cw, up to 40 mA current, 350 or 700 MHz). The beam dynamics for such a long structure (16 gaps) is the KONUS dynamics. There are 2 quad triplets before and after the structure (first FDF then DFD) for transverse focusing. The longitudinal focusing is done in the first 1 to 4 gaps of the cavity, the rest of the gaps is for acceleration.

Sauer compared the CH structure with the better known room-temperature IH structure. The IH structure uses a H_{110} mode, CH uses H_{210} , as a result for the same frequency the IH structure is more compact. The interdigital loading makes the IH structure less stiff, the cross-bar loading of the CH structure makes it very stiff and well suited for SC application.

The Frankfurt/GSI interest in these structures is the high real estate gradient of these structures. At GSI a low- β IH structure has been operated at 10 MV/m. The proposed application is for a $\beta=0.1$ structure for an energy range of 5-8 MeV, this could be followed by a second CH-structure at $\beta=0.2$.